

I claim:

Sub 13/ 1) A method for controlling placement of a first part on a second part comprising, placing a printed image containing a digital watermark on at least one of said parts, capturing a digital image of said printed image, reading a grid signal contained in said digital watermark, and determining the angular rotation of said part from said watermark grid signal.

13 2) The method of claim 1 including the step of reading other payload data from said watermark.

3) The method of claim 1 wherein said grid signal is used to determine the location of said part.

4) The method recited in claim 1 wherein said first part is an electronic component.

5) The method recited in claim 1 wherein said second part is a printed circuit board.

6) A system for controlling a pick and placement machine which places a first part on a second part and wherein at least one of said parts includes a printed image containing a watermark, means for reading data from said digital watermark from said part, and means for determining the orientation of said part from the data read from said watermark.

7) The system of claim 6 including means for reading other payload data from said watermark.

8) The system of claim 6 wherein said grid signal is used to determine the location of said part.

9) The system of claim 6 wherein said grid signal is used to determine the distance of said part from said means for reading.

10) The system of claim 6 wherein said first part is an electronic component.

11) The system of claim 6 wherein said second part is a printed circuit board.

12) A robot for handling items, said robot including,  
a camera for acquiring an electronic image of a printed image containing a watermark  
a computer including a program from reading a digital watermark in an electronic image acquired by said camera,  
a controller for controlling said robot in response to the data acquired from said digital watermark.

13) The robot recited in claim 12 including means for reading a grid signal from said digital watermark.

14) The robot recited in claim 13 wherein said printed image is on an item to be handled by said robot.

15) The robot recited in claim 14 including means for determining the distance from said camera to said item from said grid signal.

16) The robot recited in claim 14 including means for determining the orientation of said item from said grid signal.

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